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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,762	04/07/2000	Shannon Mary Nelson	NORTH-390A/A-2241	9968
7663	7590	01/24/2006	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER 75 ENTERPRISE, SUITE 250 ALISO VIEJO, CA 92656			SEDIGHIAN, REZA	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 01/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

all

Office Action Summary

Application No.

09/544,762

Applicant(s)

NELSON ET AL.

Examiner

M. R. Sedighian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6,8-13 and 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

This communication is in response to remarks of 10/11/05. Claims 1-6, 8-13, and 15-17 are now pending.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2, 5-6, 8-9, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al. (US patent No: 4,850,044) in view of Cathey et al. (US patent No: 4,063,083).

Regarding claims 1, 5, 8, and 15, Block teaches a shock-resistant system (col. 4, lines 60-63, it is well known and it is obvious that the circuit boards with electrical and optical components such as the ones of Block can be housed within a shock-resistant housing to provide safety and protection for the circuit components and for the users) for operatively interconnecting circuit cards (15, fig. 1 and 15a-15f, fig. 2) within a computer system (col. 1, lines 6-10, 16-25) to enable data to be transmitted and received therebetween (col. 1, lines 8-10), comprising: a common backplane (col. 4, lines 66-68, col. 5, lines 1-6 and 11, fig. 2) having a plurality of circuit card connectors (col. 5, line 2) disposed in spaced apart relation thereon for supporting circuit cards in a generally upright parallel relationship (col. 5, line 3); a plurality of circuit cards (15a-15f, fig. 2) each being mounted to one of the circuit card connectors (col. 5, line 2) and each having a transmitter (23a-23f or 21a-21f, fig. 2) and a receiver photodiode formed thereon (20a-20f or 22a-22f, fig. 2); a plurality of optical pathways formed solely

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through air (col. 8, lines 63-68) between the circuit cards, the optical pathways forming a plurality of independent optical connections (col. 5, lines 20-26) between the transmitter (23b, fig. 2) on one of the circuit cards (15b, fig. 2) and the receiver photodiode (20a, fig. 2) on any one of circuit cards (15a, fig. 2); and wherein the circuit cards are maintained in fixed relationship to one another via the common backplane to maintain continuous optical intercard communications between each of the circuit cards such that the transmitter on each circuit card is operative to generate and transmit a signal and the photodiode of one corresponding circuit card is operative to receive the signal through the corresponding optical pathway (col. 5, lines 7-26). Block differs from the claimed invention in that Block does not specifically disclose LEDs as transmitters. However, Block discloses, in the background section, that Cathey and Smith describe a data communications system for transfer of data between printed logic cards in a data processing system incorporating LED transmitters (col. 1, lines 63-68). Cathey discloses a data communication system for transfer of data between circuit cards using LED transmitters (col. 6, lines 35-41, 58-66). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate LED transmitters, as it is taught by Cathey, for the laser transmitters of Block to provide a wide radiated light distribution and to provide an inexpensive optical data communication system.

Regarding claims 2 and 9, Block discloses optically transmitted infrared radiation (col. 4, lines 4-10).

Regarding claims 6 and 13, Block discloses the first and second circuit cards are operative to run an embedded application (col. 1, lines 8-10, it is obvious and well known that

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circuit boards such as the ones of Block can be used within a computer system to run an embedded application).

4. Claims 3-4, 10-12, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al. (US patent No: 4,850,044) in view of Cathey et al. (US patent No: 4,063,083) and in further view of Gehrke et al. (US patent No: 6,310,992), or Croft et al. (US Patent No: 5,864,708).

Regarding claims 3-4, 10-11, and 17, the modified optical data communication system of Block and Cathey do not specifically disclose the transmission and reception signals comprise a standardized infrared communication scheme protocol that is developed by the infrared data association. Gehrke teaches a plurality of electro-optic modules (102, 104, figs. 1, 4 and col. 3, lines 60-67, col. 4, lines 1-9) with optical transmitters (204, 304, fig. 4) and receivers (202, 302, fig. 4), wherein the optical transmitters and receivers are IrDA devices (col. 4, lines 5-6). Croft discloses wireless transceivers (63, 64, fig. 1) that communicate with each other by using Infrared Data Association standard protocol (col. 3, lines 5-14). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of invention to incorporate IrDA optical transmitters and receivers such as the ones of Gehrke or Croft for the optical transmitters and receivers in the modified communication systems of Block and Cathey in order to provide a reliable method of data transmission to avoid interference and collisions.

Regarding claim 12, Block discloses the circuit cards are operative to run an embedded application (it is obvious and well known that circuit cards such as the ones of Blocks can be used within a computer system to run an embedded application).

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Block et al. (US patent No: 4,850,044) in view of Cathey et al. (US patent No: 4,063,083) and in further view of Mizzi (US patent No: 4,545,023), or Cargin, Jr. et al. (US Patent No: 6,023,147).

Regarding claim 16, the modified optical data communication system of Block and Cathey differs from the claimed invention in that Block and Cathey do not specifically disclose the computer system includes a hand-held data collection device. Mizzi teaches a handheld computer that comprises of circuit cards (col. 1, lines 6-10). Cargin discloses a hand-held data collection device (col. 3, lines 55-60 and 10, fig. 1) that includes a plurality of circuit cards (col. 10, lines 22-29). Therefore, it would have been obvious to an artisan at the time of invention to incorporate the plurality of electro-optical circuit cards such as the ones of Block within a handheld computer, as it is taught by Mizzi or Cargin, in order to provide a compact and movable optical data transmission system.

6. Applicant's arguments filed 10/11/05 have been fully considered but they are not persuasive.

Remark states modification of Block by incorporating "transmitter LED" renders intended purpose of Block unsatisfactory and no suggestion or motivation can be provided to make the proposed modification. However, Block discloses communication between logic cards by using semiconductor lasers operating in short wavelength ranges (col. 4, lines 5-10). It is well known that LED transmitters can be used as light sources to generate lights of short wavelengths. For example, Butterworth et al. (US Patent No: 5,847,507) discloses such well known concept that a light source such as LED, or a laser diode can be used for generating short wavelength

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light signals (see Butterworth, abstract). Likewise, Letertre (US Patent Application Publication 2004/0187766 A1) teaches the use of LED, or a laser diode for generating short wavelength light signals (see Letertre, page 1, paragraph 0002). Accordingly, it would have been obvious to a person of ordinary skill in the art to incorporate LEDs for the lasers in the logic cards of Block, since it is well known that LEDs are cheaper. Remark further states Block specifically limits “each logic card to communicate only with the adjacent card on either side to minimize the transmission distance”, and as the communication can only be established with the adjacent cards, Block teaches away the optical communication between one and any of the circuit cards, as recited in claims 1 and 8. Claims 1 and 8, each requires an optical communication between a transmitter LED on one of the circuit cards and the receiver photodiode on any one of the circuit cards. Block clearly teaches such limitation. For example, light transmitter 21a of circuit card 15a, communicates with photodiode receiver 22b of circuit card 15b (circuit card 15b is any one of the circuit cards 15a, 15c, 15d, 15e and 15f). Note that limitations “on any one of the circuit cards”, of claim 1, and “on any of the circuit cards” of claim 8, interpreted as on either one of the circuit cards, and Block clearly teaches such limitations, as discussed above. Remark further states Block specifically requires the radiation emitted from the semiconductor laser to be divergent, and therefore, teaches away standardized communication scheme protocols that requires a convergent beam rather than a divergent beam. However, IrDA standards does not necessarily require convergent beam rather than divergent beam. For example, LEDs that transmit uncollimated beam with diverging angles are considered as light sources based on IrDA standards, as such concept is taught by Heflinger (US Patent No: 5,726,786, see col. 13, lines 54-67, col. 14, lines 1-8). Likewise, Japanese Patent application No: 10-285115 discloses light

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sources 14 that generate divergent beams 14N that form an IrDA irradiation cone 20 (see abstract). Therefore, optical data communication system of Block can be modified to incorporate LED transmitters that communicate based on the standardized infrared communication scheme protocol, as discussed above in rejection of claims 3-4, 10-12, and 17. Remark further states Block recognizes the convergent characteristics of LED transmitters and specially shows the undesirability of the precision in alignment of logic cards required by using LED transmitter specifically when Block teaches “semiconductor lasers emits radiation which emerges in a divergent beam and spacing between logic cards that is relatively close that obviates the need for lenses or other optical devices”. However, incorporating lasers that emit divergent beams does not necessarily mean that LED transmitters can not be used. There are LEDs that also emit divergent beams. For example, Jiang et al. (US Patent No: 6,901,221) teaches LED 110 on a circuit board 106 that emits divergent beam (see col. 6, lines 33-36 and col. 7, lines 9-10). Therefore, LEDs or lasers are both suitable sources for emitting optical radiations that can be used on the circuit boards 15 of Block. As to use or not to use a lens for convergence, the circuit boards 15 of Block are relatively close to each other so there is no need of lens to converge the light, despite the use of lasers or LEDs as light sources. Furthermore, Block discloses lenses may be used where it is desired to project the beam long distances, for example, across the interior of a logic card frame (col. 5, lines 33-35). Remark further states both Block and Cathey teach away from the optical connection solely through air between one and any other circuit cards. However, Block clearly teaches optical communication between transmitters 21 and receivers 22 solely through air, as it is shown in fig. 2, and Cathey teach an output light portion 68 from an LED 66 that can be transmitted between circuit cards through air.

In certain circumstances, references cited to show a universal fact need not be available as prior art before applicant's filing date. In *re Wilson*, 311 F. 2d 266, 135 USPQ 442 (CCPA 1962). Such facts include the characteristics and properties of a material or a scientific truism. Applicant's attention is directed that during the prosecution of a pending patent application the terms found in the claims should be given the broadest reasonable interpretation, *See in re Pearson*, 181 USPQ 641 (CCPA 1974).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. R. Sedighian whose telephone number is (571) 272-3034. The examiner can normally be reached on M-F (from 9 AM to 5 PM):

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


M. R. SEDIGHIAN
PRIMARY EXAMINER